CLAIMS

1. A method of reducing the feedback caused between the output and the input of an amplification path, comprising the steps of:

providing a delay for incorporation in the amplification path;

introducing into the amplification path a noise signal having an auto-correlation function which is substantially a delta function;

correlating the signal before the delay with the noise signal to produce a plurality of correlation coefficients;

modifying the signal in the amplification path to provide a modified signal, the modification being provided by a transversal filter controlled by the said plurality of correlation coefficients; and

combining the modified signal with the signal in the amplification path so as to reduce the effect of the feedback.

2. A method according to claim 1, in which after an initial period the correlation step is changed so that correlation is between the signal before being delayed in the delay with the signal after being delayed in the delay.

3. A method of reducing the feedback caused between the output and the input of an amplification path, comprising the steps of:

providing a delay for incorporation in the amplification path;

passing through the amplification path a signal having an auto-correlation function which is substantially a delta function;

correlating the said signal before being delayed in the delay with the signal after being delayed in the delay to produce a plurality of correlation coefficients;

modifying the signal in the amplification path to provide a modified signal, the modification being provided by a transversal filter controlled by the said plurality of correlation coefficients; and

combining the modified signal with the signal in the amplification path so as to reduce the effect of the feedback.

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4. A method according to claim 3, in which the steps of correlating and modifying in the transversal filter make use of a common delay chain.

5. A method according to claim 1, in which the step of correlating comprises applying one of the signals to be correlated to delay means such as to produce a series of delayed signals, multiplying the other of the signals to be correlated with each of the said one of the signals and the delayed signals, and smoothing the signals resulting from the multiplication to provide a degree of integration thereof.

6. A method according to claim 1, in which the modified signal is combined with the signal in the amplification path before the delay

7. A method according to claim 1, including the step of integrating the correlation coefficients before application thereof to control the transversal filter.

8. A method according to claim 1, in which the amplification path includes a variable-gain amplifier.

9. A method according to claim 8, in which the gain of the variable-gain amplifier is varied in dependence upon the correlation coefficients.

10. A method according to claim 8, in which the gain of the variable-gain amplifier is initially at a relatively low value and is increased as the feedback is reduced by operation of the method.

11. A method according to claim 8, in which the variable-gain amplifier forms part of an automatic gain control system.

12. A method according to claim 1, in which at switch-off the correlation coefficients are stored, and on subsequent switch-on the stored coefficients are used as initial values.

13. A method according to claim 1, in which the delay is a variable delay, and including the steps of reducing the delay from an initial value as the feedback is reduced by operation of the method.

14. A method according to claim 1, including the steps of initially down-converting from radio frequency (RF) to baseband before applying the signal to the delay, and

subsequently up-converting from baseband to radio frequency, and in which the amplification path, correlation, modification and combination take place with signals in complex form.

15. Apparatus for reducing the feedback caused between the output and input of an amplification path, comprising;

a delay (60) in the amplification path;

means (70,62) for introducing into the amplification path a noise signal having an auto-correlation function which is substantially a delta function;

a correlator (72) for correlating the signal before the delay with the noise signal to produce a plurality of correlation coefficients;

a transversal filter (76) receiving the signal in the amplification path and controlled by the correlation coefficients to provide a modified signal; and

a combiner (42) for combining the modified signal with the signal in the amplification path so as to reduce the effect of the feedback.

16. Apparatus according to claim 15, in which the apparatus is incorporated in a transceiver for receiving and re-transmitting radio-frequency signals.

17. Apparatus according to claim 16, in which the transceiver is used in conjunction with at least one broadcast receiver, and the transceiver tuning is controlled in response to a remote control device which operates the broadcast receiver.

18. Apparatus for reducing the feedback caused between the output and input of an amplification path, comprising:

a delay (60) in the amplification path;

means (52,54) for passing through the amplification path a signal having an auto-correlation function which is substantially a delta function;

a correlator (72) for correlating the said signal before being delayed in the delay with the signal after being delayed in the delay to produce a plurality of correlation coefficients;

a transversal filter (76) receiving the output signal from the delay and controlled by the correlation coefficients to provide a modified signal; and

a combiner (42) for combining the modified signal into the signal in the amplification path so as to reduce the effect of the feedback.

19. Apparatus according to claim 18, in which the apparatus is incorporated in a transceiver for receiving and re-transmitting radio-frequency signals.

20. Apparatus according to claim 19, in which the transceiver is used in conjunction with at least one broadcast receiver, and the transceiver tuning is controlled in response to a remote control device which operates the broadcast receiver.